

Claims

1. A reforming system for a fuel cell, including an evaporating device (6) for evaporating a raw fuel (13) and for delivering the evaporated raw fuel (13) to a reforming unit, at least one pump for metering the raw fuel (13) that is conducted into the evaporating device (6), and a control unit (8), characterized in that at least one pump is a metering pump, whose rpm is regulated by means of the control unit (8); and that at least one monitoring device serves to monitor the metering quantity of the raw fuel (13) through the regulated metering pump.
2. The reforming system of claim 1, characterized in that at least one electric fuel pump serves as the metering pump.
3. The reforming system of claim 1, characterized in that a high-pressure pump driven by an electric motor (7) serves as the metering pump.
4. The reforming system of claim 1, characterized in that two pumps (2, 3) for metering the raw fuel (13) conducted into the evaporating device (6) are connected in series, and the second pump (3) is regulated while the first pump (2) operates continuously.
5. The reforming system of claim 4, characterized in that the two pumps (2, 3) are electric fuel pumps, and the second electric fuel pump (3) is regulated by means of a timing module (14).
6. The reforming system of claim 4, characterized in that the first pump is an electric fuel pump (2) acting as a prefeed pump, and the second pump is a high-pressure pump (3).
7. The reforming system of claim 1, characterized in that a monitoring device is a pressure sensor (12), which measures the counterpressure in the evaporating device (6).

8. The reforming system of claim 1, characterized in that a monitoring device monitors the current consumption of the at least one pump (3).
9. The reforming system of claim 1, characterized in that a monitoring device is a flow sensor (17), which detects the metering quantity into the evaporating device (6).
10. The reforming system of claim 1, characterized in that a monitoring device is an rpm sensor (20), which measures the rpm of the at least one pump.
11. A method for regulating the metering quantity in an electric fuel pump (29) in a reforming system of one of claims 1 through 10, characterized in that a variable ascertained with the monitoring device serves as a controlled variable for the regulation, and the rpm of the electric fuel pump (29) serves as a controlling variable for the regulation, the rpm being set by means of a timing module (14).
12. The method of claim 11, characterized in that the counterpressure measured with a pressure sensor (20) serves as a controlled variable for the regulation.
13. The method of claim 11, characterized in that the pulse width ratio of the trigger signal of the timing module (14) serves as a controlling variable, and a characteristic curve of the rpm as a function of the load state, stored in memory in the control unit (8), is compared with the rpm measured by the rpm sensor (20), and if there is a deviation, the rpm is varied as a controlled variable by way of the pulse width ratio of the trigger signal of the timing module.
14. A method for regulating the metering quantity of a metering pump in a reforming system of one of claims 1 through 10, characterized in that the metering quantity serves as a controlled variable, and a characteristic delivery curve of the metering pump (3) is stored in memory in the control unit (8), which characteristic delivery curve indicates a set-point value

for the metering quantity as a function of the rpm of the metering pump (3), and upon a deviation in the metering quantity from the set-point value, detected by a flow sensor (17), the rpm is varied as the controlling variable.

15. A method for monitoring a metering pump (3) in a reforming system of one of claims 1 through 10 in a motor vehicle, characterized in that upon a deviation of a variable, ascertained by the monitoring device, from a set-point value, a warning signal is output by means of a driver-information system.

16. The method of claim 15, characterized in that the warning signal is output by the driver-information system if a monitoring device for monitoring the current consumption of the metering pump (3) detects that a defined maximum or minimum current limit has been exceeded or undershot for longer than a defined length of time.

17. The method of claim 15, characterized in that a warning signal is output by a driver-information system if the rpm of the metering pump, measured by the rpm sensor (20), deviates from the set-point value defined by a characteristic curve.

18. The method of claim 14, characterized in that a warning signal is output by a driver-information system if the metering quantity measured by a flow sensor (17) deviates from its set-point value.

19. The method of one of claims 15 through 18, characterized in that in addition to the warning signal, in the case of motor vehicle, hazard-warning lights are activated.

20. The use of a reforming system of one of claims 1 through 10 for metering a raw fuel to a fuel cell in a fuel cell vehicle.